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pital purposes, stating that the liability to enteric fever and other camp diseases was much lessened when the sick were under canvas. The streets between hospital-tents should be at least fifty



FIG. 1.

feet in width ; and when it was necessary to heat the tents, as in winter, open fires in front of them gave the best results.

The following resolutions were adopted by the section of climatology and demography : —

"Resolved. That in the opinion of the section on medical climatology and demography, of the Ninth International Medical Congress, assembled in the city of Washington, Sept. 5-10, 1887, it is important there should be established in every country a national department, bureau, or commission for the record of vital statistics upon a uniform basis, to include not only accurate returns of births and deaths, but the results of collective investigation by government officials, of facts bearing upon the natural history of disease as manifested among men, women, and children separately, especially with regard to climatic and other discoverable causes of the several forms of disease, — race, occupation, and residence being included, — that necessary preventive measures may be determined and enforced for the preservation of the public health."

Dr. Denison of Colorado read a paper on the preferable climate for phthisis, illustrated copiously with maps and tables. He believes that climate is to be preferred for the greater number of consumptives in the United States which is between fifteen hundred feet elevation in the North in winter, and ten thousand feet in the South in summer.

Dr. Day of Louisiana presented a report which was the result of an inquiry into the facts relating to the effects of overflow of the Mississippi River, and based on communications from five hundred physicians of the South. His deductions are, (1) that overflows are injurious to the public health ; (2) that their evil effects upon health are lessened or entirely antagonized by good natural or artificial drainage, and by copious showers of rain occurring during the period of subsidence of the waters; (3) that rice-culture is inimical to health only by reason of the improper and unsanitary manner of its cultivation.

Dr. Semmola of Naples delivered an address on bacteriology

and its therapeutic relations: He regards the tendency to consider bacteriology as the key to all pathology to be a great mistake. Microbes are not always the cause, but are often the effects, of disease. Before any microbe is to be regarded as the cause of a given disease, we ought to reproduce that disease artificially by that microbe. The experiments made have not given any satisfactory results, except in carbuncle and tuberculosis. To conclude hastily that a given microbe is the cause of any disease is to ignore the experimental method. In the present condition of bacteriology it cannot be taken as a guide for the treatment of internal diseases. Modern bacteriology may lead the way to the most fruitful field of inquiry in the future, but for the present it has produced no practical results in the cure of internal diseases. It has not yet been demonstrated in what measure microbes are the causes of diseases. In future investigations preconceived ideas must be abandoned, and scientific independence must be preserved.

Dr. Freire of Brazil read a paper on vaccination in yellow-fever, in which he renewed his claim to the discovery of a method by which yellow-fever may be prevented. He also exhibited specimens of the yellow-fever microbe. In families consisting of a considerable number of persons, if vaccination was practised after the outbreak of the fever, its progress in that family was arrested ; if not practised, all would be stricken down, and a large proportion, if not all, would die.

In addition to these papers, of which we have been able to give only the briefest *résumé*, a large number of others were presented to the congress, which were of great value and importance, and from which we shall hope to make extracts hereafter.

SOME WESTERN MUMMIES.

EARLY in the present year a party of prospectors were searching for precious metals and old Spanish mines in the wild regions of



FIG. 2.

Arizona and New Mexico. They happened to win the confidence of an Indian chief by curing his sick daughter, who had been given up by the medicine-man ; and he offered to show them a wonderful cave, where it was supposed that gold bars and immense riches

were hidden. But the cave was sealed up with adobe cement, and the Indians had never attempted to open it. The situation of this cave, which the miners at once turned to visit, is described as being



FIG. 3.

on the west side of the cañon of the Gila River, near the bend where it flows westward into Arizona. On opening the cave, they found a number of human bodies.

After this discovery, they proceeded more cautiously. The cave was found to be a natural sepulchre, not fashioned by the hands of man, about twenty-five feet in diameter, and covered with a peculiar dry dust. Along its irregular sides and roof, not a trace of any pictographs could be found; but near the entrance one body, and at the far end four others, were discovered, and all in a wonderful state of preservation. The bodies were wrapped in cloths of peculiar workmanship, some rich in texture.

The shrouds enveloping the bodies crumbled to dust at the slightest touch, as would a piece of burned linen or paper; and only three samples were saved,—one a coarse cloth, a sort of cordage; another similar but finer; and the third of a finer thread texture.

After carefully searching the cavern, and having fully satisfied themselves that its richness was all a superstitious legend, the miners prepared to convey the mummified remains to civilization. Much difficulty and many hardships were encountered during this undertaking. The Indians of that district have the greatest superstitious veneration for the burying-places of the prehistoric races, amounting in some cases to actual worship; looking upon the dead bodies as departed gods, so do they reverence the mounds and ruins in that locality. The Indians, therefore, protested against the removal of the remains; and it was only through diplomacy, bribery, and strategy that we have the bodies here-to-day.

A careful examination of these remains leaves no doubt as to their genuineness. They are desiccated human bodies, wonderfully well preserved when we consider their probable age and the fact that I do not find any trace of any embalming process having been used. They are consequently nothing like the Egyptian mummies. The viscera, brain, and every thing is in its proper or normal anatomical position. Even the sexes can readily be distinguished. The skin is like dried leather or thick parchment. The hair is well

preserved on the heads and on the eyebrows of Fig. 1, and on the pubes. The teeth, nails, cartilages of the ears and nose, are in good condition, and the nipples and mammae in Fig. 4.

It is barely possible that the burying-shrouds may have been impregnated with some preservative chemicals or herbs, although hardly probable, as these cloths crumbled to dust on exposure. The only reasonable explanation is, that the hot dry air of this region absorbed all the moisture in the bodies, and literally dried them up, skin, muscles, and viscera. The Indians on this coast dry their buffalo and bear meat in a similar manner in the summer for food in the winter.

Fig. 1 represents the first body, found sitting in the same attitude at the entrance of the family sepulchre, face towards the east. It is a male body, and the giant of the whole group. His stature is the largest, and will measure five feet six or seven. The frame is well proportioned. The skin has a dirty grayish appearance, parchment-like to the touch, and closely adherent to the bones. He has a luxurious growth of black and rather coarse hair. The eyebrows are jet-black, and stiff like bristles. Very few hairs can be discovered on the face. The forehead is well developed; head measures twenty and one-half inches in circumference. The hands and feet are shapely. The dark lines circumscribing the extremities in this and the following figures are cords, with which they are retained in their original positions, and bound to the cases in which they are packed.

Fig. 2 shows the mortal remains of an elder male, not quite as tall, nor with as large a frame, measuring about five feet three. He was found sitting in his present posture between the other two bodies, at the far end of the cave. The teeth are well preserved, and the tongue is like a dried piece of bark. The cloth surrounding his extremities is a heavy fabric, through which is woven a yellowish thread. The small piece of cloth adherent to the tibio-femoral articulation is the only part of the finer shrouds that was saved.

Fig. 3 portrays the mother and the child (a little girl about four years of age). The babe was found as depicted, nestled closely to its mother's breast. This group attracts much attention. They

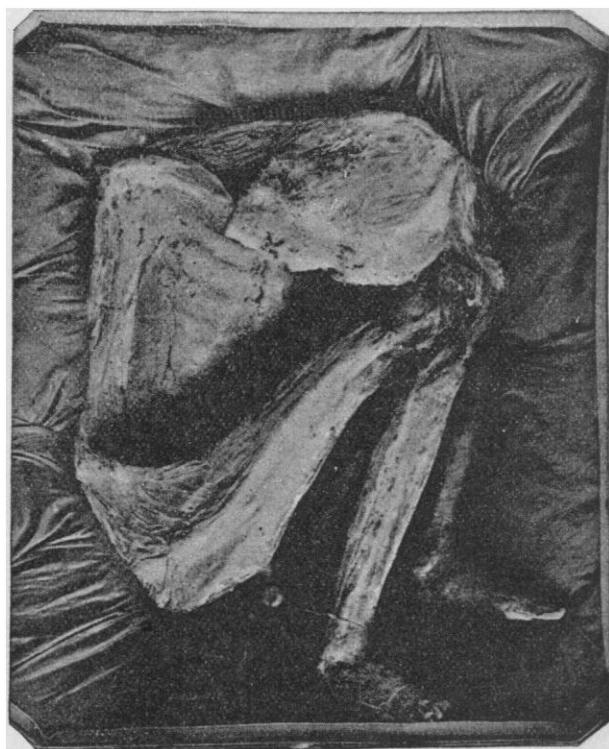


FIG. 4.

are the best preserved bodies in the whole group. The large figure is that of a woman about five feet tall, small hands and feet, and well-proportioned features. The child is well formed, has evidently walked, and reached about four years. Coarsely woven fabric

shrouds the lower limbs of the mother. It is of the same general characteristics as that covering the body in Fig. 1.

Fig. 4 represents the body of a younger woman, although less perfectly preserved. She has small delicate features, very small hands and feet, and the instep is highly arched. On part of the head is found long, fine black-brown hair. It comes off readily, half of it having already fallen out. From the appearance of the mammae and nipples, I should say she had born children. The pelvis is large and well formed.

The cranial, throacic, abdominal, and pelvic viscera have not been disturbed in any case. No violence has caused death; and why these five remains of ancient civilization should have been placed side by side in a stone sarcophagus, five thousand feet up in a cave, must remain a matter of speculation for the present. Perhaps they all belonged to one family, — father, mother, and child, with husband and daughter or son and wife.

The heads are well shaped. The measurements of their skulls would place them among the meso-cephalic, or intermediate between the dolicho- and brachy-cephalic. The face is oval, high cheek-bones, long eyes sloping outwards, the fleshy lips and nose rather flat and wide. In my judgment, these are bodies belonging to a period not less than four or five hundred years ago. The owner of these bodies, Mr. Joel Docking of San Francisco, is going to place them in one of the large museums of the world.

WINSLOW ANDERSON, M.D.

EXPLORATION AND TRAVEL.

New Guinea.

SINCE the Germans have taken possession of the eastern part of the north coast of New Guinea, and the island has been divided by treaties among the Dutch, English, and Germans, explorations are carried on very vigorously. It is only a few years since d'Albertis discovered the upper part of the Fly River, and thus was the first to enter the interior of the large island for a considerable distance. Since that time English missionaries have been very active in the exploration of the south coast. Of prime importance is the work of Rev. J. Chalmers, who knows the natives probably better than any other white man. His remarks on the distribution of a light and a dark colored population of New Guinea, the former of whom he considers Malayans, the latter Papuans, are of great interest. He states that the former, on their migration from the north-west, located between the Papuan aborigines (*Proc. Roy. Geogr. Soc.*, 1887).

The Australian colonies take a particular interest in the exploration of the island, as they are watching with jealousy the attempts of the French and Germans to gain a foothold in the Pacific Ocean. Since the close of 1885 they have equipped several expeditions, but so far they have not been very successful. In 1885 the small steamer 'Bonito' was sent out to explore the high mountain-ranges in which the Fly River has its source; but this attempt failed, as the steamer was in the hands of an unskilled captain. The only geographical result was the exploration of a small tributary of the Fly River, though the cost of this expedition was about eighteen thousand dollars.

In 1886 the well-known traveller H. O. Forbes set out to explore the Owen Stanley Mountains in the south-eastern part of New Guinea; but unfortunately he arrived on the island in the rainy season, when travelling is impossible, and later on he had to give up his intention on account of lack of means. The project has, however, been taken up again, and Mr. Vogan, the curator of the Auckland Museum, and Mr. Cuthbertson, are about to start on a journey from the south coast to Huon Bay.

Besides these attempts, which have so far had no important results, a great number of successful explorations have been carried out. The *Deutsche Kolonialzeitung* reports that a private expedition was sent by a Sydney house to the Gulf of Papua. The steamer 'Victory' reached Aird River at the northern extremity of the Gulf on March 21, 1887, and ascended the river for eighty miles. Its delta is very extensive, and was partly explored by the steamer. The river was called Douglas River. The 'Victory' returned and discovered another large river near Bald Head. It received the name of Jubilee River, and was found navigable for one hundred and

ten miles. Even at this point it was three hundred yards wide and from two to five fathoms deep. Unfortunately no map of this survey has been published so far, and therefore these discoveries could not be inserted in our sketch-map.

New discoveries in the region of Baxter River were made by J. Strachan, who explored part of the river-branches forming the delta of Fly and Baxter Rivers. The same traveller has been exploring the southern coast of Dutch New Guinea, and reports the discovery of a narrow channel leading from McClure Gulf to Geelvink Bay; but Mr. Wichmann remarks justly in *Petermann's Mitteilungen*, that the correctness of this discovery must be doubted, as A. B. Meyer, who travelled over the isthmus, states expressly that there is no connection between the bays.

The best surveys made in New Guinea during the last years are those of the officers of the New Guinea Company and of German men-of-war visiting these coasts. In these parts of our map will be found the most important and most extensive alterations, as compared to former maps. The coast from Humboldt Bay to the southern boundary has been resurveyed for the greater part, and the results have been published by the New Guinea Company (in *Nachrichten über Kaiser Wilhelms-Land*). From these publications we have taken the course of Augusta River and the coastline. South of Cape della Torre another river was discovered which was called Otilie River, but it could not be followed to any distance on account of its shallowness: it carries a great volume of water, and may be ascended by a steamer of three or four feet gauge. The course of these rivers shows that the high part of New Guinea is formed by a narrow range of mountains which begins at Geelvink Bay and continues throughout the island to its south-eastern point. The banks of the rivers are inhabited by natives, large villages being found on their upper parts. It will be of great interest to learn where the large river emptying itself at Point D'Urville has its source. So far, the rivers have been the only means of penetrating into the interior, for the vegetation is so dense that it prevents extensive journeys. The map shows that the outlines of many islands are still unknown, and we must add that the positions of the small islands and reefs are uncertain.

A great difficulty in all enterprises on New Guinea is occasioned by the hostility of the natives. In some parts the English missionaries have succeeded in gaining their confidence, particularly by the help of Polynesian teachers, but generally the natives are distrustful and aggressive. The same is true in New Ireland and New Britain; but it is hoped that in course of time better relations will be established. Recently natives of New Guinea and New Britain have begun to work on the plantations of the companies. The climate of the island is in most parts unhealthy, particularly in the swampy alluvial districts, which are very fertile. It may be, however, that it will become more healthful when the woods are cleared and the swamps drained, as was the case in northern Queensland.

ETHNOLOGY.

Mound-Exploration.

THE second bulletin of the Bureau of Ethnology is a statement by Mr. Cyrus Thomas, who is in charge of the archaeological division of the bureau, on the methods adopted for carrying on mound-exploration, and on the present state of the work of the division. His method of investigation is to mark out the several archaeological districts by searching for typical forms of remains in the different parts of the country. For the present the field of researches is limited to the district east of the Rocky Mountains. Three north and south lines were worked: the first and principal one, the immediate valley of the Mississippi from Wisconsin southward; the second, from Ohio southward through Kentucky to Mississippi; and the third, in the valley of eastern Tennessee and western North Carolina, thence southward through Georgia and Alabama to Florida. Sections which had been somewhat carefully worked over were generally passed by. The specimens found by the exploring parties are handed over to the National Museum.

Among the results so far obtained, the most important ones are mentioned in the bulletin. The links discovered directly connecting the Indians and mound-builders are so numerous and well established that there should be no longer any hesitancy in accepting the theory